BUCKTON LYSENKO
CONSULTING ENGINEERS

REPORT ON INFASTRUCTURE SERVICES & FLOODING

Civil Engineering Report for Development Application

Bay Park
The Waterfront Precinct,
Homebush Bay

3rd December 2009

CONTENTS PAGE

1 EXECUTIVE SUMMARY

Pace Properties are proposing a residential development on the parcel of land at the intersection of Bennelong Parkway and Hill Road , known as 23 Bennelong Parkway, Wentworth Point. The development application will be assessed under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act) by the NSW Government Department of Planning.

This parcel was included in the masterplanning done in 1996 for the development known today as The Waterfront. Connell Wagner determined in their report (March 1996) that this site is flood free and this has been confirmed by Auburn Council in the flood mapping done in 2009.

The approved masterplan for stormwater drainage (prepared by Connell Wagner in 1996) has been followed all by all subsequent developments to date. Drainage from the site will flow to Homebush Bay via existing connections to the Bay. Gross pollution traps (GPTs) have been installed on all outlets to Homebush Bay. There is no requirement for stormwater detention facilities on this site.

Neither general groundwater or wetlands within Millennium Parklands are affected by the development due to its location on the previously developed industrial area.

The masterplan for water and sewerage prepared between 1996 and 1997 was accepted by Sydney Water and has been followed by all developments to date. Recycled water was made available in 2001 and has been reticulated throughout the Waterfront Precinct.

There are existing services in Bennelong Parkway and within the Waterfront Estate of sufficient capacity which are readily available for the proposed development on the site.

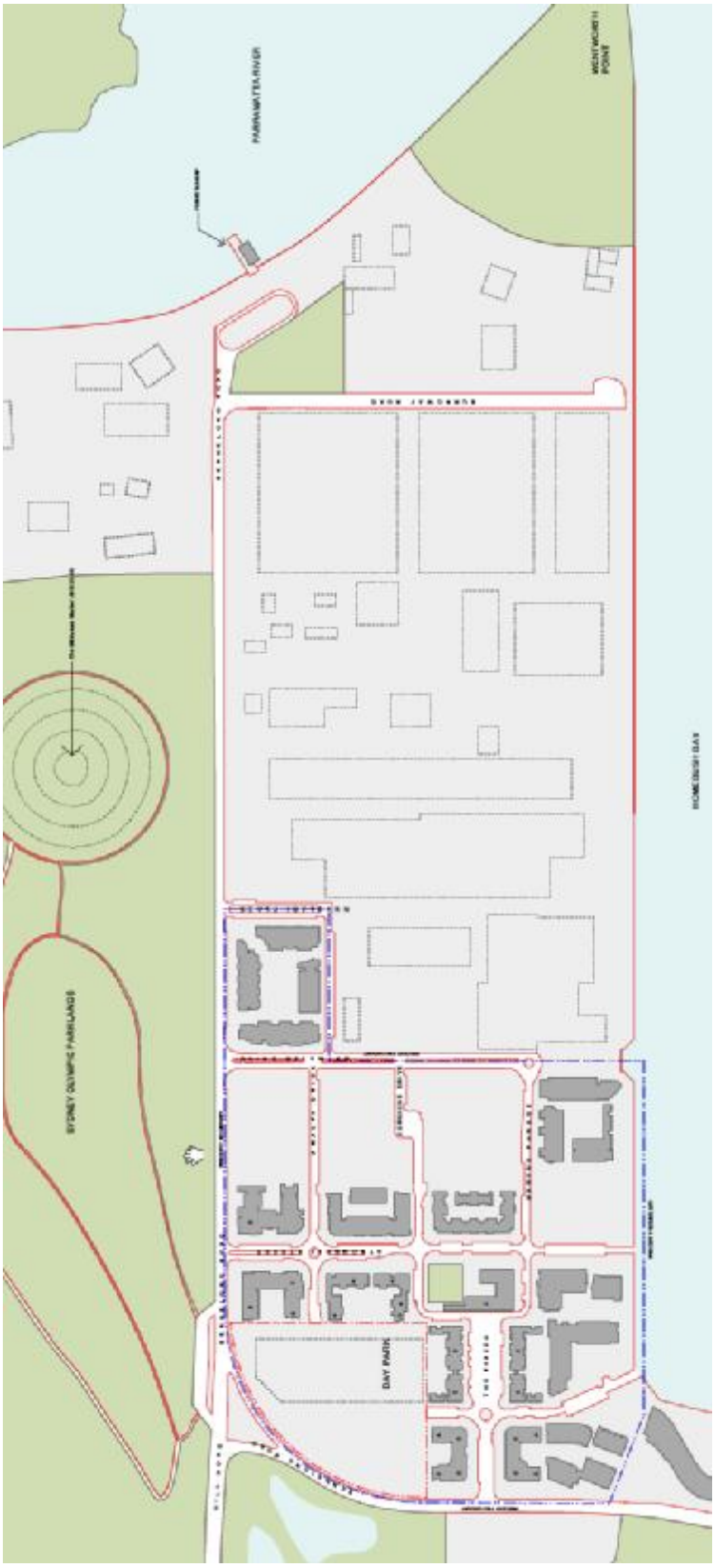
2 INTRODUCTION

To the north and east of this site is the Waterfront Estate developed by Payce Properties. This particular parcel of land known as Bay Park was included in the masterplan for servicing the whole precinct and submitted to Sydney Water for approval in 1998. The outcome of their review was the amplification of the sewer rising main in Bennelong Road to accommodate the Waterfront Precinct and other development to the north. The 300Ø sewer rising main was constructed in 1999. The water supply was satisfactory in 1999 and is still satisfactory.

To service the Bay Park development it is proposed to connect to:-

- Existing recycled water (Waterfront community asset)
- Sydney Water's 300Ø watermain in Bennelong Parkway
- Sydney Water's 300Øsewer rising main in Bennelong Parkway.

The new services will be under the ownership of a community title. Services will be located underground within service allocations in the road verges, in accordance with normal subdivision practice. These services corridors will be provided within the green space on the surface.



THE WATERFRONT PRECINCT LOCALITY PLAN

3 WATER CYCLE STRATEGY

The Payce Waterfront Precinct is part of the Homebush Bay West development area and therefore forms part of the water cycle strategy fo the Homebush Bay area.

The water cycle strategy has been formulated by OCA in response to the Olympic focus on ESD issues, resulting in reduced demand for potable water through the use of reclaimed water, provided from a reclaimed water plant located at the Brick Pit. Source water for the reclaimed water system is derived from sewage effluent and stormwater from the Olympic Precinct.

The reclaimed water supply to this area became available in 2002 and has been reticulated throughout the Waterfront Precinct under a community title. This will be extended to service the Bay Park development and will meet all irrigation and toilet flushing needs so there will be no need to harvest rainwater.

Bay Park will be supplied with potable water from the existing mains belonging to the Waterfront Community and Sydney Water.

The Bay Park development will directly connect Sydney Water's 300Ø sewer rising main in Bennelong Parkway via a reticulated sewer rising main under a community title.

Stormwater from Bay park development will connect to the existing stormwater system constructed in the previous stages.

4 DRAINAGE AND FLOODING

Drainage and flooding issues for the area were investigated by Connell Wagner as part of the development of the Waterfront Precinct and a Drainage Strategy report (March 1996) was prepared for and issued to Auburn Council to assist Council in the approval of those new works.

Flood studies in the area have assumed a maximum water level in Homebush Bay of 1.5m AHD. The maximum recorded tide at Homebush Bay was 1.445m AHD on 25 May 1974, the mean high water springs mark is 0.635m AHD and the maximum neaps tide is 0.975m AHD. Therefore, with the ground level of the Payce waterfront precinct being greater than 2.0m AHD, there is not a flooding problem at the site.

Drainage from Bay Park will flow to Homebush Bay via existing connections to the Bay, except for small sections of the entrance roads which will drain to Bennelong Road. To achieve improved drainage of the site, existing ground levels will be raised, similar to the levels in the Waterfront Estate..

A drainage strategy for Bay Park, with proposed high points allows for an overland flow paths along roads, when pipes are full. Council's requirement is for flows up to the 1 in 20 year average recurrence interval (ARI) be taken in pipes. Gross pollution traps (GPTs) have been constructed on all major discharges to the Bay. Oil interceptors will need to be constructed in large care parking areas.

There is no requirement for stormwater detention facilities on this site.

Prior to construction, an environmental management plan will need to be prepared. This will address runoff and sediments from the construction site and how they will be managed during construction.

This assessment takes notice of the discussion papers of Global Warming and the 100-year forecast for possible rises in seas level.

However the current flood studies disclosed in the DEC and LEP show the subject to be 500mm above the known current flood levels and it is anticipated that the substantive development Application will take civil and hydraulic design and procedural notice of the current discussion papers and projections arising from Global Warming issues.

These issues were discussed with Mr George Stamatakos (Director of Engineering at Auburn) and he agreed this matter should be addressed in the substantive Development Application and may well utilize the design benefits of batters, bunding and embankments for flood mitigation and control along with hydraulic engineering one-way discharge control valves and the like.

5 SEWERAGE

The site will be serviced by a common sewer rising maim under the control of the community. This main will be linked to the 300mm rising main in Bennelong Parkway, owned by Sydney Water, which connects to SPS 42 located south of the Haslams Creek bridge. This main far exceeds the requirement of this development.

Individual residential buildings will have their own pumping station (complying to Sydney Water's Standards), connected to the community rising main.

See Appendinx B for Sewage Flows

6 WATER SUPPLY

The water supply to the Bay Park development will from Sydney Water's 300mm main in Bennelong Parkway and the existing community system in the Waterfront. The current water supply conditions are such that they far exceed the ultimate requirements for this development both for domestic and fire protection.

The internal water reticulation with the development will be via a combination of 200mm and 150mm mains under the control of the community. This system will easily meet the requirements of domestic, fire and irrigation demands.

The new Sydney Water initiatives of reducing pressures in their system to reduce leakage will not be implemented in this area.

See Appendix A for Water Demand

7 COMMUNICATIONS

Telstra upgraded its network in the Homebush Bay area to cater for the 2000 Olympic Games demands and the redevelopment at the Homebush Bay waterfront precinct. There is a fibre optic cable located in Bennelong Road which will adequately service the Payce residential site.

The site distribution network will be installed by any approved service provider, and will be underground.

8 GAS

There is a high pressure gas main located in Bennelong Road which will provide the necessary gas needs for heating, hot water and cooking within the Payce residential site.

A regulator will be provided in a suitable location to reduce the high pressure to normal consumer pressures.

A reticulation network will be installed in the road verges to supply the residential lots.

9 POWER SUPPLY

Energy Australia has high voltage cables located in Bennelong Road and a major zone substation is under construction south of the site. This substation services the Silverwater area as well as the Homebush area and therefore power supply to the site is readily available.

It is proposed to connect to the Energy Australia system at Bennelong Road and have a high voltage ring (11KV) through the site, which connects to transformers in discrete locations to suit the power demands of the low voltage network.

A low voltage network will be reticulated from these transformers to the residential lots and the public areas such as street lighting and parks.

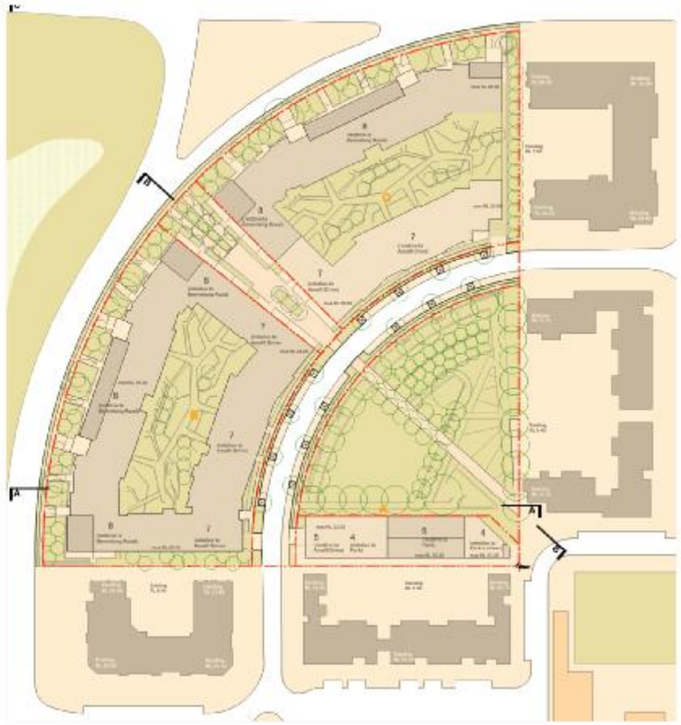
All cables will be underground.

APPENDIX A – MASTERPLAN BAY PARK

	FLOOR SPACE	NSA (92.5% efficiency)	1 BED 50-55sqm	2 BED 74-86sqm	3 BED 115-125sqm	UNITS (73.8 sqm avg)
BUILDING A			5	27	3	35
BUILDING B			115	189	7	311
BUILDING C			64	178	13	255
TOTALS	48,000 sqm	44,400 sqm	184	394	23	601
SITE AREA	25,570sqm					
FSR	1.9:1sqm		31%	65%	4%	

PARKING RATES	visitors	1 bed	2 bed	3 bed	
DCP min:	0 0 spaces	1.0 / unit 184 spaces	1.0/ unit 401 spaces	1.0 / unit 16 spaces	601 spaces total required
DCP max:	1.0 /5 units 120 spaces	1.0 / unit 184 spaces	1.5/ unit 601 spaces	2.0 / unit 32 spaces	937 spaces total allowed
Povided:	1.0/7 units 81 spaces	1.0 / unit 184 spaces	1.3/ unit 524 spaces	2.0 / unit 40 spaces	829 spaces provided

LANDSCAPE AREAS (also see diagrams DA06)	deep soil	park	communal space	total open space
	6,184 sqm	4,910 sqm	3,667 sqm	15,356sqm



SCALE @ A1 @ A3

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Site Statistics_Stage 1 DA

08053

Bay Park
23 Bennelong Parkway Wentworth Point NSW 2127

DA07 E

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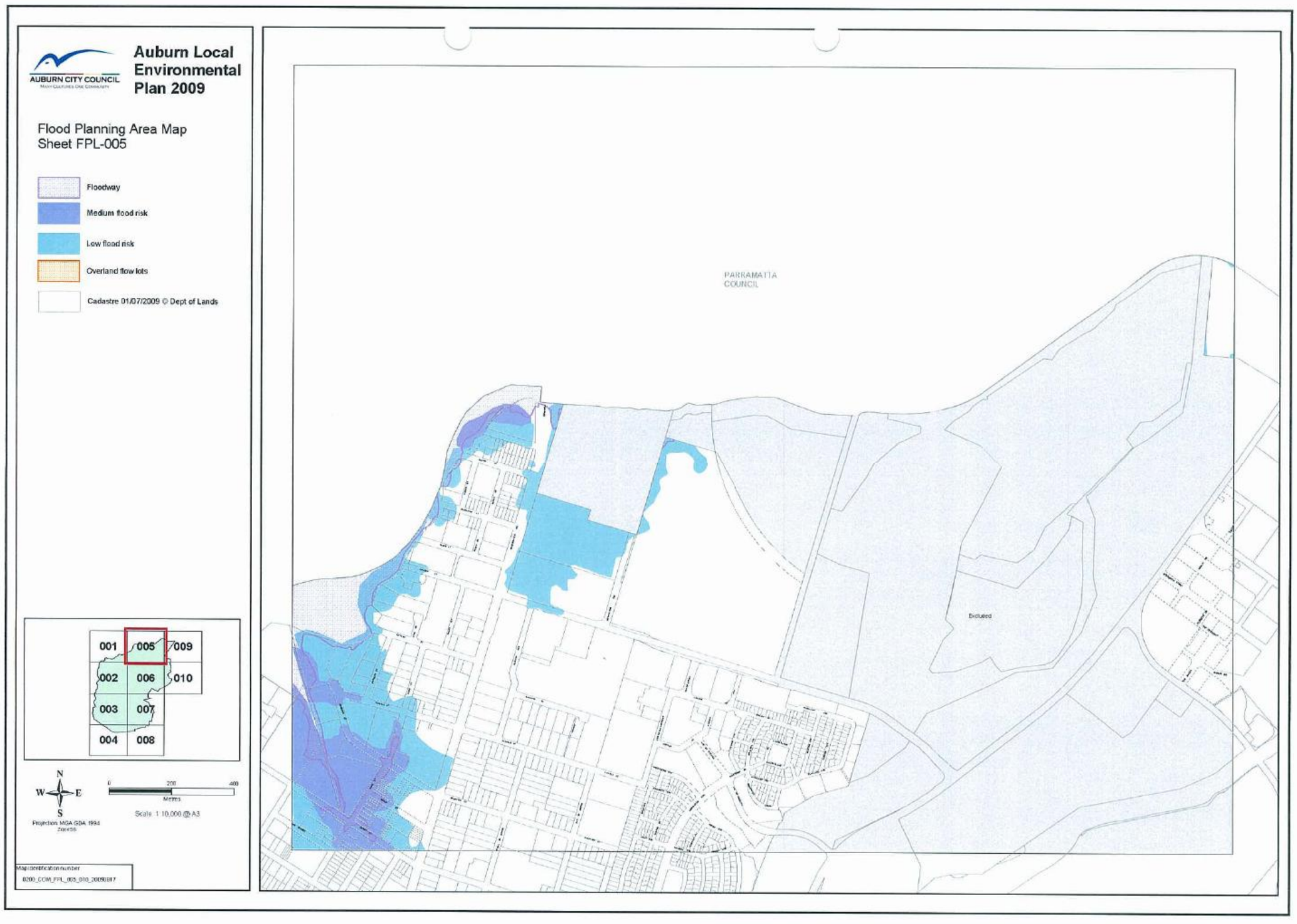
APPENDIX B – AUBURN COUNCIL'S FLOOD MAPPING



APPENDIX C –MASTERPLAN SEWER REQUIREMENTS

Table 1 S

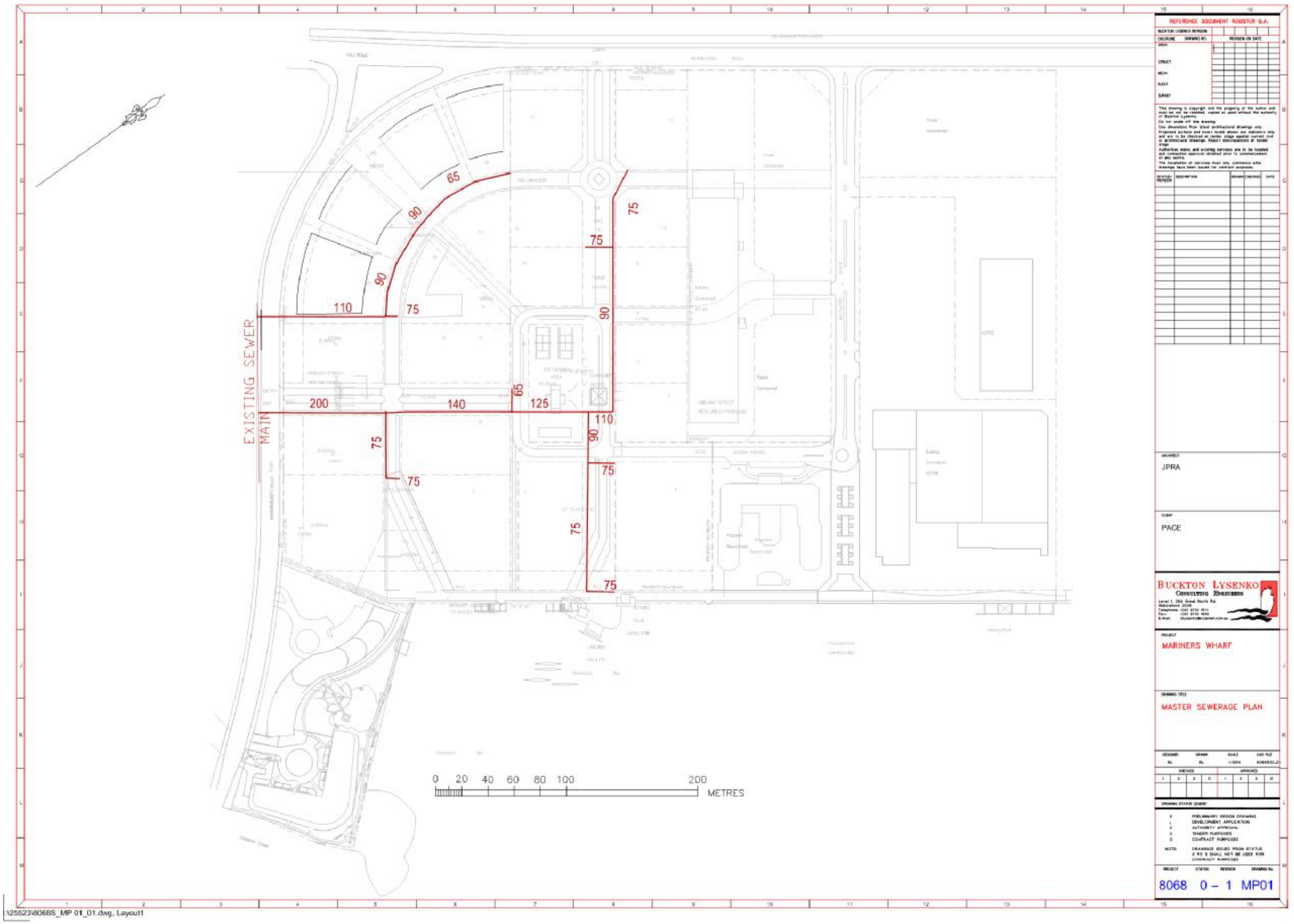
Sewerage Requirements (Estimated 1997)

Lot No.	Site Area	No Units	EP/unit	EP	Qd	Density
	ha				l/s	EP/ha
1a	0.50					
1b	0.30					
2	0.60	22x3br+60x2br	3 & 2	186	2.65	310
3	0.55	22x3br+60x2br	3 & 2	186	2.65	338
4	0.80	22x3br+60x2br	3 & 2	186	2.65	233
5	0.80	22x3br+60x2br	3 & 2	186	2.65	233
6	0.20	15x3br+6x2br	3 & 2	57	1.1	285
7	0.20	4x3br+16x2br	3 & 2	44	0.9	220
8	0.20	4x3br+16x2br	3 & 2	44	0.9	220
9	0.20	4x3br+16x2br	3 & 2	44	0.9	220
10	0.20	15x3br+6x2br	3 & 2	57	1.1	285
11	0.50	26x3br+52x2br	3 & 2	182	2.6	364
12	0.50	26x3br+52x2br	3 & 2	182	2.6	364
13	0.20	15x3br+6x2br	3 & 2	57	1.1	285
14	0.20	4x3br+16x2br	3 & 2	44	0.9	220
15	0.20	4x3br+16x2br	3 & 2	44	0.9	220
16	0.20	15x3br+6x2br	3 & 2	57	1.1	285
17	0.20	4x3br+16x2br	3 & 2	44	0.9	220
18	0.22	4x3br+16x2br	3 & 2	44	0.9	200
19	0.30	26x3br+52x2br	3 & 2	182	2.6	607
20	0.30	26x3br+52x2br	3 & 2	182	2.6	607
21	0.22	15x3br+6x2br	3 & 2	57	1.1	259
22	0.20	4x3br+16x2br	3 & 2	44	0.9	220
23	0.22	15x3br+6x2br	3 & 2	57	1.1	259
Totals	**8.01**	**926**		**2166**	**34.8**	**270**

Table 2 S

Sewerage Requirements (Estimated 2009)

Lot No.	Building	No Units			EP/unit	EP	Qd
	Name	1Br	2Br	3Br			l/s
1a							
1b							
2		**25**	**60**	**16**	1.5,2 & 3	**205.5**	2.93
	MONACO	2	20	2	1.5,2 & 3		
	MONTE CARLO	0	0	5	1.5,2 & 3		
	POSITANO	23	40	9	1.5,2 & 3		
3	VALENCIA	**40**	**105**	**28**	1.5,2 & 3	**354.0**	5.04
4	LIPARI, RIMINI						
5	ST TROPEZ	70	94	13	1.5,2 & 3	332.0	4.73
6	CORFU	4	32	18	1.5,2 & 3	124.0	1.77
7	CORFU				1.5,2 & 3		
8							
9	NAPOLI	19	50	7	1.5,2 & 3	149.5	2.13
10	NAPOLI						
11	PAROS	47	76	8	1.5,2 & 3	246.5	3.51
12	SORRENTO	34	78	8	1.5,2 & 3	231.0	3.29
13	TORINO	3	42	9	1.5,2 & 3	115.5	1.65
14	TORINO						
15							
16	PULCE				1.5,2 & 3	50.0	0.71
17	PORTOFINO		16	6	1.5,2 & 3	50.0	0.71
18	PORTOFINO				1.5,2 & 3	0.0	0.00
19	CAPRI	56	29	2	1.5,2 & 3	148.0	2.11
20	MYKONOS	26	51	2	1.5,2 & 3	147.0	2.09
21	SANTORINI	5	18	6	1.5,2 & 3	61.5	0.88
22	SANTORINI						
23							
	BAY PARK						
	A	5	27	3	1.5,2 & 3	70.5	1.00
	B	115	196		1.5,2 & 3	564.5	8.04
	C	64	178	13	1.5,2 & 3	491.0	7.00
Totals				1,704		3,340.5	47.6



APPENDIX D – MASTERPLAN WATER REQUIREMENTS

Table 1 W

Water Requirements Domestic (Estimated 1997)

Lot No.	Site Area ha	No Units	Dwellings /Ha	Max Day Rate kl/ha/day	Qd kl/day	Q max hr l/s
1a	0.50					
1b	0.30					
2	0.60	22x3br+60x2br	137	100	60	1.4
3	0.55	22x3br+60x2br	137	100	55	1.3
4	0.80	22x3br+60x2br	137	100	80	1.9
5	0.80	22x3br+60x2br	137	100	80	1.9
6	0.20	15x3br+6x2br	105	100	20	0.5
7	0.20	4x3br+16x2br	100	80	16	0.4
8	0.20	4x3br+16x2br	100	80	16	0.4
9	0.20	4x3br+16x2br	100	80	16	0.4
10	0.20	15x3br+6x2br	105	100	20	0.5
11	0.50	26x3br+52x2br	156	182	91	2.1
112	0.50	26x3br+52x2br	156	182	91	2.1
13	0.20	15x3br+6x2br	105	100	20	0.5
14	0.20	4x3br+16x2br	100	80	16	0.4
15	0.20	4x3br+16x2br	100	80	16	0.4
16	0.20	15x3br+6x2br	105	100	20	0.5
17	0.20	4x3br+16x2br	100	80	16	0.4
18	0.22	4x3br+16x2br	91	80	17.6	0.4
19	0.30	26x3br+52x2br	260	208	62.4	1.4
20	0.30	26x3br+52x2br	260	208	62.4	1.4
21	0.22	15x3br+6x2br	95	80	17.6	0.4
22	0.20	4x3br+16x2br	100	80	16	0.4
23	0.22	15x3br+6x2br	95	80	17.6	0.4
Totals	**8.01**	**926**		**2380**	**826.6**	**19**

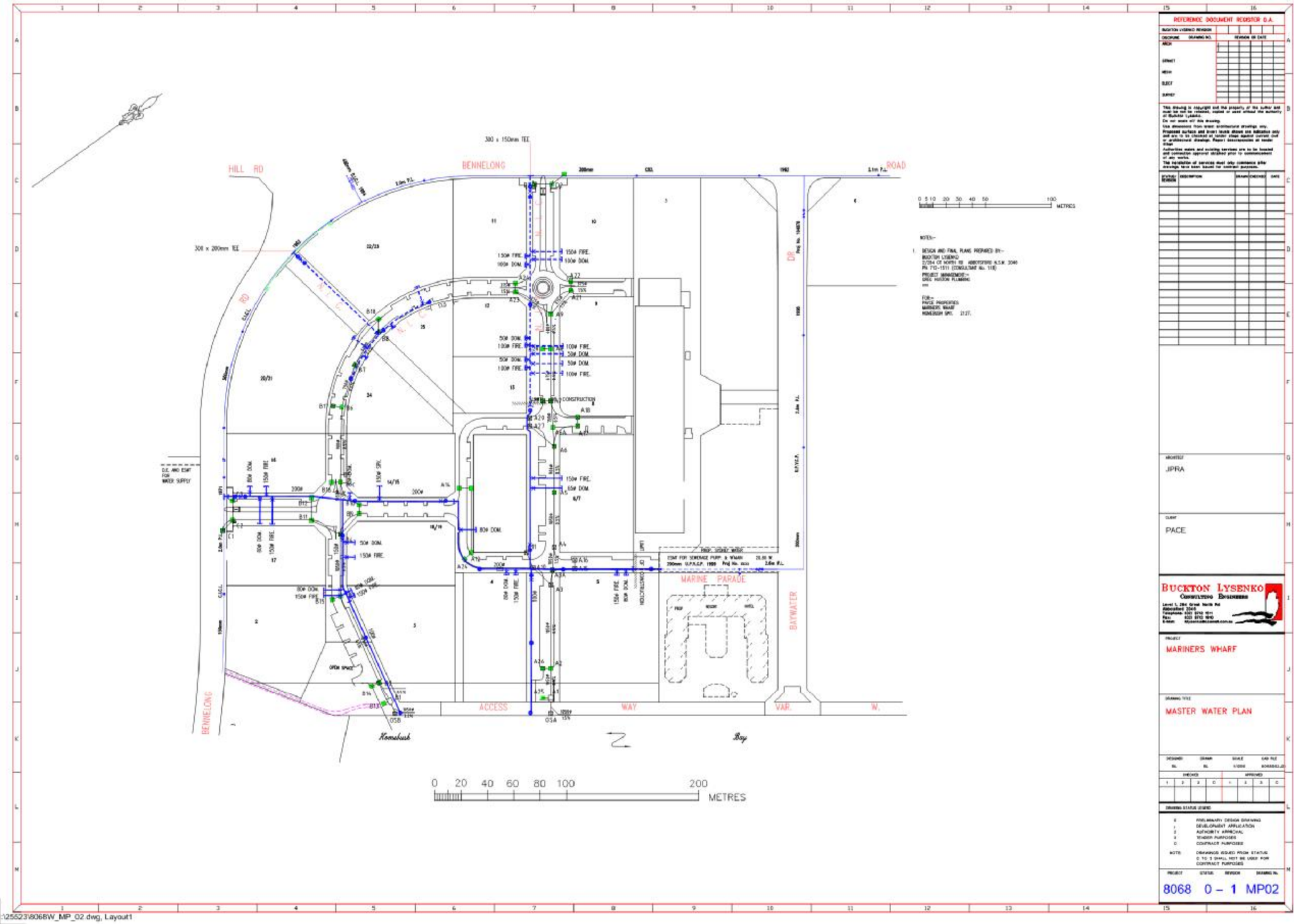
Fire Water Requirements	
Sprinklers	16
Fire Hydrants	30
Totals	**46**

Table 1 W

Water Requirements (Estimated 2009)

Lot No.	Lot Areas ha	Distrib Rd Areas Ha	Road +Lots net Ha	Building Name	No Units 1Br	2Br	3Br	No Units	Dwellings /net Ha	Max Day kl/ha/day	Qd kl/day	Q max hr l/s
1a										or 08.kL/unit		
1b												
2	0.5450	0.1572	0.7022		**25**	**60**	**16**	**101**	**144**	0.8	81	1.9
				MONACO	2	20	2					
				MONTE CARLO	0	0	5					
				POSITANO	23	40	9					
3	1.0769	0.3107	1.3876	VALENCIA	40	105	28	173	125	100	139	3.2
4				LIPARI, RIMINI								
5	0.7244	0.2090	0.9334	ST TROPEZ	70	94	13	177	190	0.8	142	3.3
6	0.4937	0.1424	0.6361	CORFU	4	32	18	54	85	80	51	1.2
7				CORFU								
8												
9	0.4919	0.1419	0.6338	NAPOLI	19	50	7	76	120	100	63	1.5
10				NAPOLI								
11	0.4142	0.1195	0.5337	PAROS	47	76	8	131	245	0.8	105	2.4
12	0.4144	0.1196	0.5340	SORRENTO	34	78	8	120	225	0.8	96	2.2
13	0.4866	0.1404	0.6270	TORINO	3	42	9	54	86	0.8	43	1.0
14				TORINO								
15												
16	0.2000	0.0577	0.2577	PULCE						41	11	0.2
17	0.3752	0.1082	0.4834	PORTOFINO		16	6	22	46	60	29	0.7
18				PORTOFINO								
19	0.3427	0.0989	0.4416	CAPRI	56	29	2	87	197	0.8	70	1.6
20	0.3427	0.0989	0.4416	MYKONOS	26	51	2	79	179	0.8	63	1.5
21	0.3752	0.1082	0.4834	SANTORINI	5	18	6	29	60	60	29	0.7
22				SANTORINI								
23												
BAY PARK	**2.8180**	0.8130	3.6310		**184**	**401**	**16**	**601**	**166**	0.8	481	11.1
				A	5	27	3					
				B	115	196						
				C	64	178	13					
Totals	**9.1009**	**2.6256**	**11.7265**					**1,704**	**145.31**	**0.80**	**1,363**	**32.44**

Fire Water Requirements	
Sprinklers	**16**
Fire Hydrants	**30**
Totals	**46**



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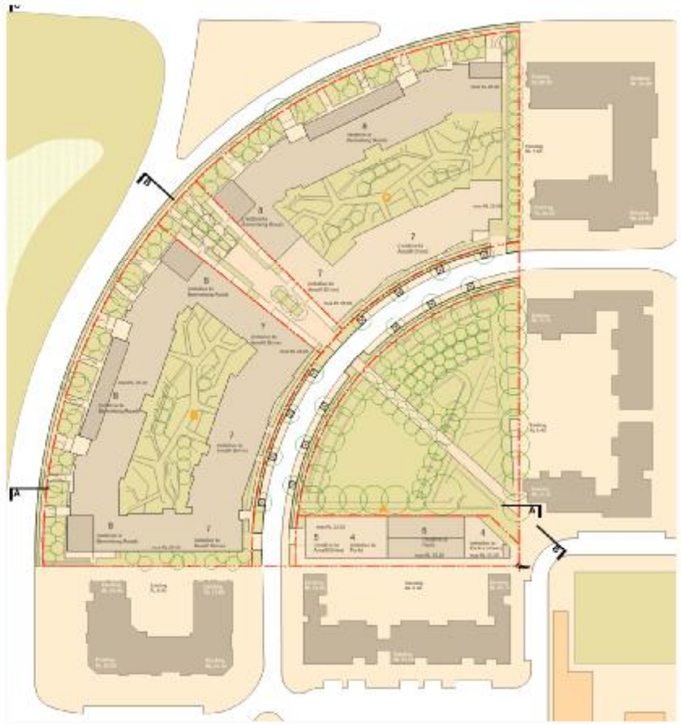
SITE AREA	25,570sqm					
FSR	1.9:1sqm		31%	65%	4%	

PARKING RATES	visitors	1 bed	2 bed	3 bed	
DCP min:	0 0 spaces	1.0 / unit 184 spaces	1.0/ unit 401 spaces	1.0 / unit 16 spaces	601 spaces total required
DCP max:	1.0 /5 units 120 spaces	1.0 / unit 184 spaces	1.5/ unit 601 spaces	2.0 / unit 32 spaces	937 spaces total allowed
Povided:	1.0/7 units 81 spaces	1.0 / unit 184 spaces	1.3/ unit 524 spaces	2.0 / unit 40 spaces	829 spaces provided

LANDSCAPE AREAS (also see diagrams DA06)	deep soil	park	communal space	total open space
	6,184 sqm	4,910 sqm	3,667 sqm	15,356sqm



SCALE @ A1 @ A3

Henlia No 3 Pty Ltd

Site Statistics_Stage 1 DA

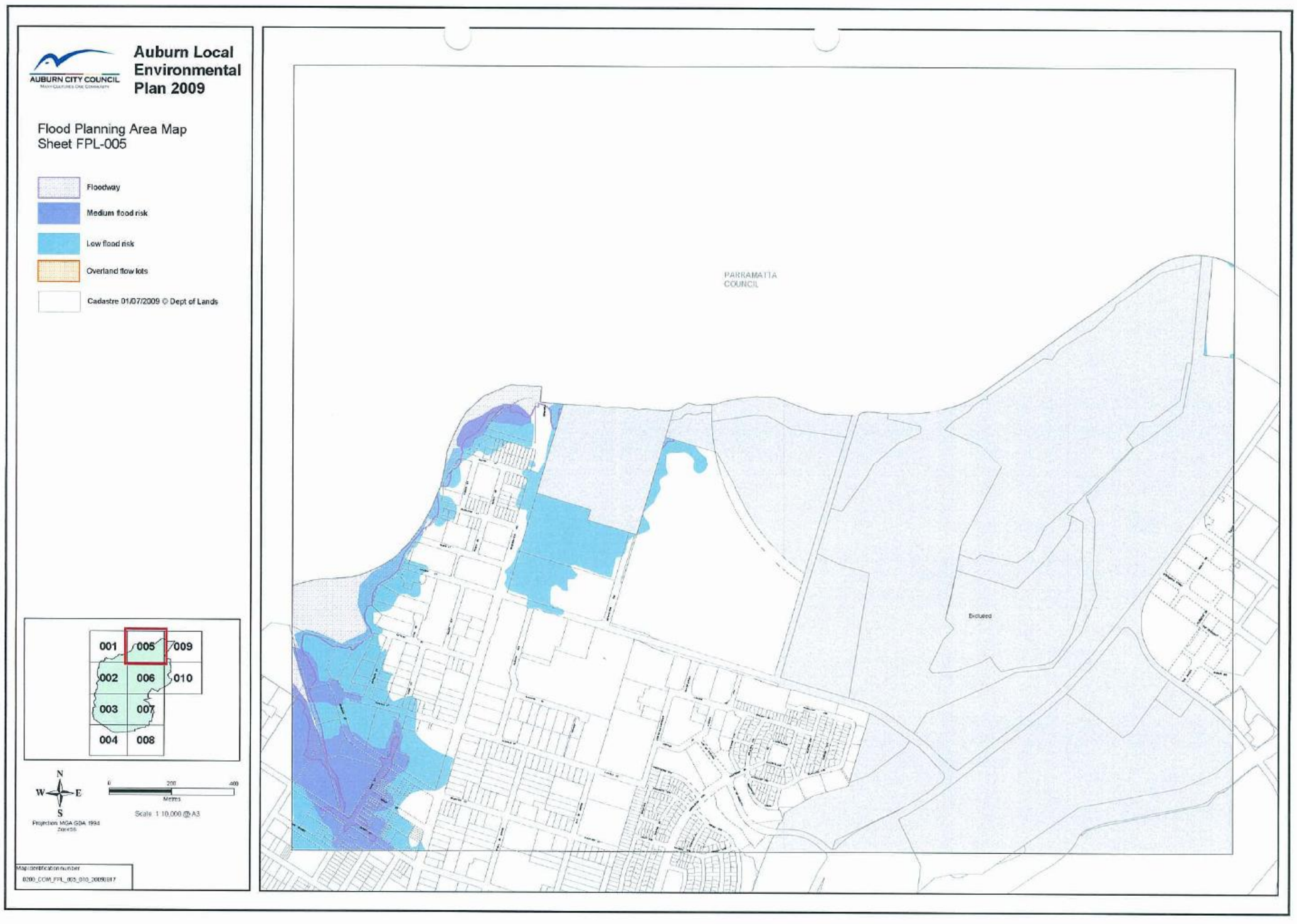
08053

Bay Park
23 Bennelong Parkway Wentworth Point NSW 2127

DA07 E

TURNER | ASSOCIATES

APPENDIX B – AUBURN COUNCIL'S FLOOD MAPPING



APPENDIX C –MASTERPLAN SEWER REQUIREMENTS

Table 1 S

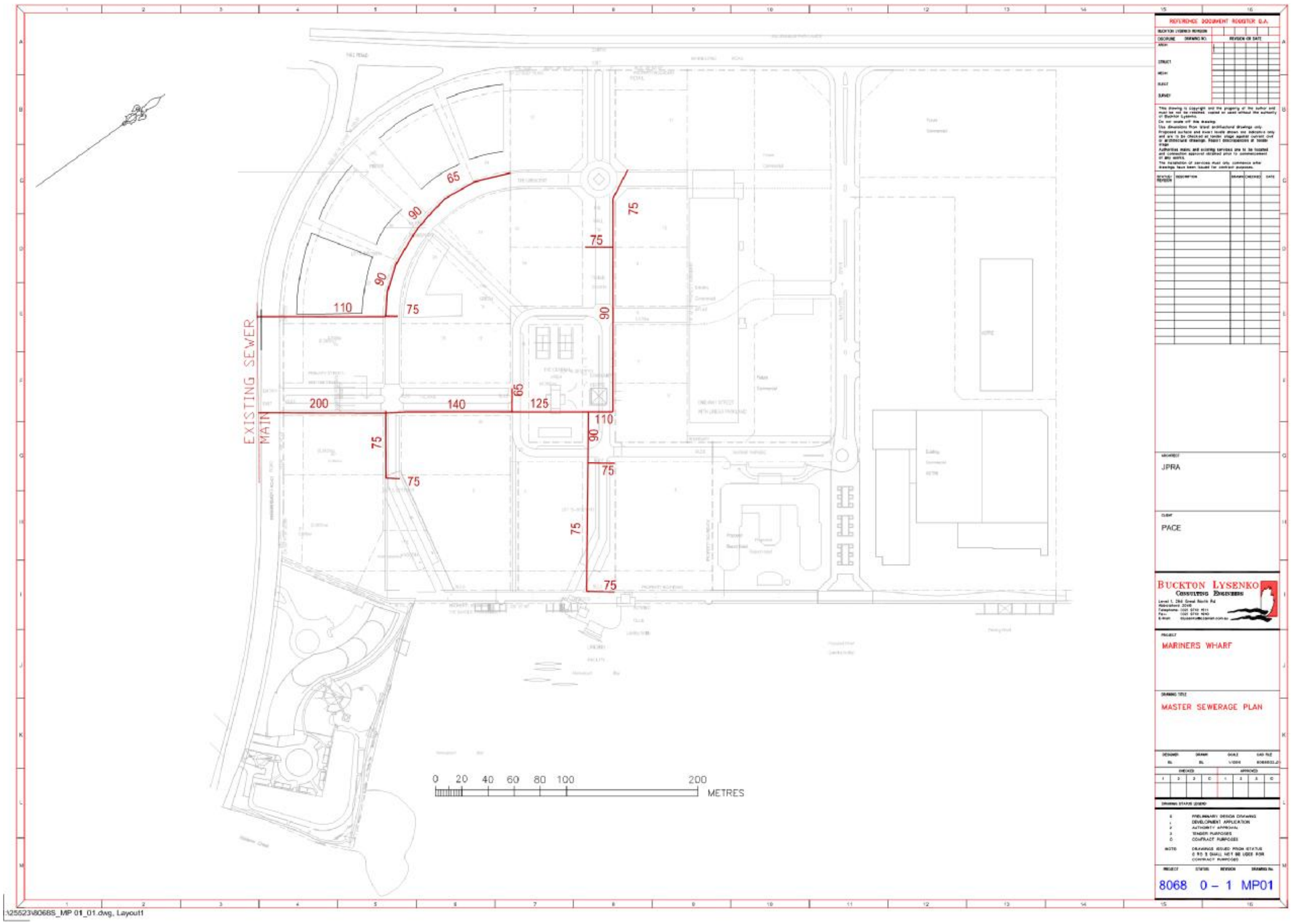
Sewerage Requirements (Estimated 1997)

Lot No.	Site Area	No Units	EP/unit	EP	Qd	Density
	ha				l/s	EP/ha
1a	0.50					
1b	0.30					
2	0.60	22x3br+60x2br	3 & 2	186	2.65	310
3	0.55	22x3br+60x2br	3 & 2	186	2.65	338
4	0.80	22x3br+60x2br	3 & 2	186	2.65	233
5	0.80	22x3br+60x2br	3 & 2	186	2.65	233
6	0.20	15x3br+6x2br	3 & 2	57	1.1	285
7	0.20	4x3br+16x2br	3 & 2	44	0.9	220
8	0.20	4x3br+16x2br	3 & 2	44	0.9	220
9	0.20	4x3br+16x2br	3 & 2	44	0.9	220
10	0.20	15x3br+6x2br	3 & 2	57	1.1	285
11	0.50	26x3br+52x2br	3 & 2	182	2.6	364
12	0.50	26x3br+52x2br	3 & 2	182	2.6	364
13	0.20	15x3br+6x2br	3 & 2	57	1.1	285
14	0.20	4x3br+16x2br	3 & 2	44	0.9	220
15	0.20	4x3br+16x2br	3 & 2	44	0.9	220
16	0.20	15x3br+6x2br	3 & 2	57	1.1	285
17	0.20	4x3br+16x2br	3 & 2	44	0.9	220
18	0.22	4x3br+16x2br	3 & 2	44	0.9	200
19	0.30	26x3br+52x2br	3 & 2	182	2.6	607
20	0.30	26x3br+52x2br	3 & 2	182	2.6	607
21	0.22	15x3br+6x2br	3 & 2	57	1.1	259
22	0.20	4x3br+16x2br	3 & 2	44	0.9	220
23	0.22	15x3br+6x2br	3 & 2	57	1.1	259
Totals	**8.01**	**926**		**2166**	**34.8**	**270**

Table 2 S

Sewerage Requirements (Estimated 2009)

Lot No.	Building	No Units			EP/unit	EP	Qd
	Name	1Br	2Br	3Br			l/s
1a							
1b							
2		**25**	**60**	**16**	1.5,2 & 3	**205.5**	2.93
	MONACO	2	20	2	1.5,2 & 3		
	MONTE CARLO	0	0	5	1.5,2 & 3		
	POSITANO	23	40	9	1.5,2 & 3		
3	VALENCIA	**40**	**105**	**28**	1.5,2 & 3	**354.0**	5.04
4	LIPARI, RIMINI						
5	ST TROPEZ	70	94	13	1.5,2 & 3	332.0	4.73
6	CORFU	4	32	18	1.5,2 & 3	124.0	1.77
7	CORFU				1.5,2 & 3		
8							
9	NAPOLI	19	50	7	1.5,2 & 3	149.5	2.13
10	NAPOLI						
11	PAROS	47	76	8	1.5,2 & 3	246.5	3.51
12	SORRENTO	34	78	8	1.5,2 & 3	231.0	3.29
13	TORINO	3	42	9	1.5,2 & 3	115.5	1.65
14	TORINO						
15							
16	PULCE				1.5,2 & 3	50.0	0.71
17	PORTOFINO		16	6	1.5,2 & 3	50.0	0.71
18	PORTOFINO				1.5,2 & 3	0.0	0.00
19	CAPRI	56	29	2	1.5,2 & 3	148.0	2.11
20	MYKONOS	26	51	2	1.5,2 & 3	147.0	2.09
21	SANTORINI	5	18	6	1.5,2 & 3	61.5	0.88
22	SANTORINI						
23							
	BAY PARK						
	A	5	27	3	1.5,2 & 3	70.5	1.00
	B	115	196		1.5,2 & 3	564.5	8.04
	C	64	178	13	1.5,2 & 3	491.0	7.00
Totals				1,704		3,340.5	47.6



APPENDIX D – MASTERPLAN WATER REQUIREMENTS

Table 1 W

Water Requirements Domestic (Estimated 1997)

Lot No.	Site Area ha	No Units	Dwellings /Ha	Max Day Rate kl/ha/day	Qd kl/day	Q max hr l/s
1a	0.50					
1b	0.30					
2	0.60	22x3br+60x2br	137	100	60	1.4
3	0.55	22x3br+60x2br	137	100	55	1.3
4	0.80	22x3br+60x2br	137	100	80	1.9
5	0.80	22x3br+60x2br	137	100	80	1.9
6	0.20	15x3br+6x2br	105	100	20	0.5
7	0.20	4x3br+16x2br	100	80	16	0.4
8	0.20	4x3br+16x2br	100	80	16	0.4
9	0.20	4x3br+16x2br	100	80	16	0.4
10	0.20	15x3br+6x2br	105	100	20	0.5
11	0.50	26x3br+52x2br	156	182	91	2.1
112	0.50	26x3br+52x2br	156	182	91	2.1
13	0.20	15x3br+6x2br	105	100	20	0.5
14	0.20	4x3br+16x2br	100	80	16	0.4
15	0.20	4x3br+16x2br	100	80	16	0.4
16	0.20	15x3br+6x2br	105	100	20	0.5
17	0.20	4x3br+16x2br	100	80	16	0.4
18	0.22	4x3br+16x2br	91	80	17.6	0.4
19	0.30	26x3br+52x2br	260	208	62.4	1.4
20	0.30	26x3br+52x2br	260	208	62.4	1.4
21	0.22	15x3br+6x2br	95	80	17.6	0.4
22	0.20	4x3br+16x2br	100	80	16	0.4
23	0.22	15x3br+6x2br	95	80	17.6	0.4
Totals	**8.01**	**926**		**2380**	**826.6**	**19**

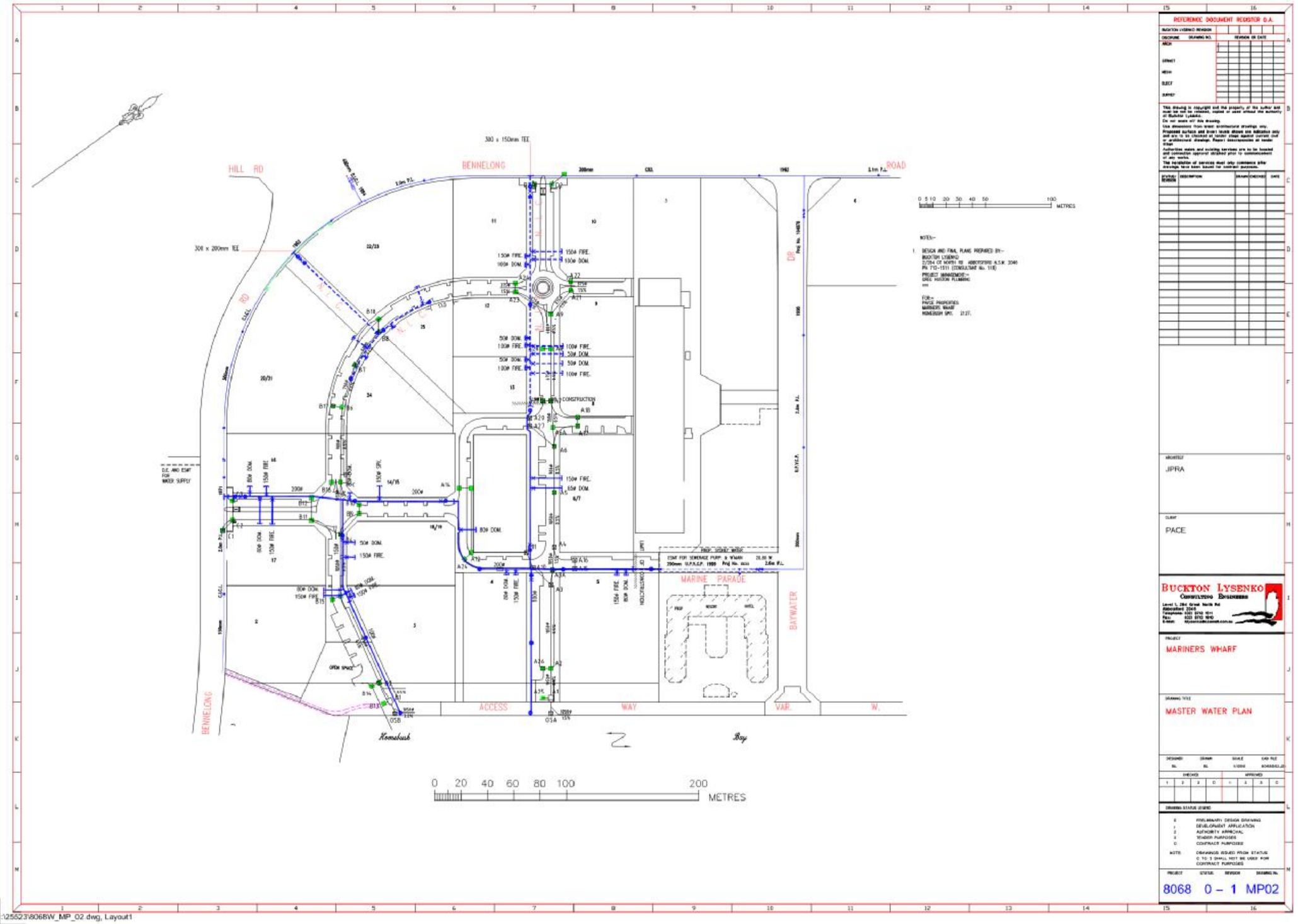
Fire Water Requirements	
Sprinklers	16
Fire Hydrants	30
Totals	**46**

Table 1 W

Water Requirements (Estimated 2009)

Lot No.	Lot Areas ha	Distrib Rd Areas Ha	Road +Lots net Ha	Building Name	No Units 1Br	2Br	3Br	No Units	Dwellings /net Ha	Max Day kl/ha/day	Qd kl/day	Q max hr l/s
1a										or 08.kL/unit		
1b												
2	0.5450	0.1572	0.7022		**25**	**60**	**16**	**101**	**144**	0.8	81	1.9
				MONACO	2	20	2					
				MONTE CARLO	0	0	5					
				POSITANO	23	40	9					
3	1.0769	0.3107	1.3876	VALENCIA	40	105	28	173	125	100	139	3.2
4				LIPARI, RIMINI								
5	0.7244	0.2090	0.9334	ST TROPEZ	70	94	13	177	190	0.8	142	3.3
6	0.4937	0.1424	0.6361	CORFU	4	32	18	54	85	80	51	1.2
7				CORFU								
8												
9	0.4919	0.1419	0.6338	NAPOLI	19	50	7	76	120	100	63	1.5
10				NAPOLI								
11	0.4142	0.1195	0.5337	PAROS	47	76	8	131	245	0.8	105	2.4
12	0.4144	0.1196	0.5340	SORRENTO	34	78	8	120	225	0.8	96	2.2
13	0.4866	0.1404	0.6270	TORINO	3	42	9	54	86	0.8	43	1.0
14				TORINO								
15												
16	0.2000	0.0577	0.2577	PULCE						41	11	0.2
17	0.3752	0.1082	0.4834	PORTOFINO		16	6	22	46	60	29	0.7
18				PORTOFINO								
19	0.3427	0.0989	0.4416	CAPRI	56	29	2	87	197	0.8	70	1.6
20	0.3427	0.0989	0.4416	MYKONOS	26	51	2	79	179	0.8	63	1.5
21	0.3752	0.1082	0.4834	SANTORINI	5	18	6	29	60	60	29	0.7
22				SANTORINI								
23												
BAY PARK	**2.8180**	0.8130	3.6310		**184**	**401**	**16**	**601**	**166**	0.8	481	11.1
				A	5	27	3					
				B	115	196						
				C	64	178	13					
Totals	**9.1009**	**2.6256**	**11.7265**					**1,704**	**145.31**	**0.80**	**1,363**	**32.44**

Fire Water Requirements	
Sprinklers	**16**
Fire Hydrants	**30**
Totals	**46**



BUCKTON LYSENKO
CONSULTING ENGINEERS

REPORT ON INFASTRUCTURE SERVICES & FLOODING

Civil Engineering Report for Development Application

Bay Park
The Waterfront Precinct,
Homebush Bay

3rd December 2009